

## **WHAT IS CLAIMED IS**

1. An apparatus for searching for broadcast signals in a television (TV) comprising:

a storage medium for storing a broadcast signal, which is received from the TV;

a skip control unit for skip-sampling the broadcast signal stored in the storage medium, based on a set multiple-times speed; and

a direct move (DM) control unit for searching the broadcast signal stored in the storage medium for the location of a frame corresponding to a set time point.

2. The apparatus of claim 1, wherein the storage medium is a Hard Disc Drive (HDD).

3. The apparatus of claim 1, wherein the storage medium stores the broadcast signal in real time.

4. The apparatus of claim 1, further comprising:

a slow control unit for reproducing one frame N times repeatedly if a slow multiple-times speed is set to  $1/N$  (N is an integer).

5. The apparatus of claim 1, wherein the skip control unit samples frames by skipping frames based on a set multiple-times speed, starting from an I frame.

6. The apparatus of claim 1, wherein the DM control unit searches for a frame, by calculating the address pointer location value of a previous I frame, which corresponds to a set time, based on a current I frame, according to a predetermined algorithm.

7. The apparatus of claim 6, wherein a backward search algorithm of the predetermined algorithm comprises the steps of:

(a) calculating a distance value (Ptemp) from a current address pointer value (Pnow) corresponding to the set time;

(b) calculating the difference (Pd) between the current address pointer value (Pnow) and the distance value (Ptemp) calculated in step (a);

(c) comparing the value (Pd) with the minimum value (Pmin) of the address pointers of the storage medium; and

(d) determining the value (Pd) as the address pointer value of a location which is searched for if the comparison result of step (c) indicates that the value (Pd) is equal to or greater than the minimum value (Pmin), and

otherwise, determining a value, which is obtained by subtracting the minimum value ( $P_{min}$ ) from the value ( $P_d$ ) and adding the subtraction result to the maximum value ( $P_{max}$ ) of address pointers of the storage medium plus 1, as the address pointer value of the location which is searched for.

8. The apparatus of claim 6, wherein a forward search algorithm of the predetermined algorithm comprises the steps of:

(a) calculating a distance value ( $P_{temp}$ ) from a current address pointer value ( $P_{now}$ ) corresponding to the set time;

(b) calculating a sum ( $P_d$ ) of the current address pointer value ( $P_{now}$ ) and the distance value ( $P_{temp}$ ) calculated in step (a);

(c) comparing the value ( $P_d$ ) with a maximum value ( $P_{max}$ ) of the address pointers of the storage medium; and

(d) determining the value ( $P_d$ ) as the address pointer value of a location which is searched for if the comparison result of step (c) indicates that the value ( $P_d$ ) is not greater than the maximum value ( $P_{max}$ ), and otherwise, determining a value, which is obtained by subtracting the maximum value ( $P_{max}$ ) of address pointers of the storage medium plus 1 from the value ( $P_d$ ), as the address pointer value of the location which is searched for.

9. The apparatus of claim 7, wherein  $P_{temp}$  in step (a) is

$\frac{(Tset) * Sr}{Id - 1}$  , where Tset denotes an input time point calculated in terms of seconds, Sr denotes a scan rate, and Id denotes an interval between I frames.

10. The apparatus of claim 8, wherein Ptemp in step (a) is

$\frac{(Tset) * Sr}{Id - 1}$  , where Tset denotes an input time point calculated in terms of seconds, Sr denotes a scan rate, and Id denotes the interval between I frames.

11. A method for backward searching for a broadcast signal in a method for searching for the broadcast signal using a storage medium of a TV, the method for backward searching comprising the steps of:

- (a) determining whether or not a Direct Move (DM) key is input;
- (b) setting a time point to be searched for if the DM key is input;
- (c) calculating a distance value (Ptemp) from a current address pointer value (Pnow) corresponding to the time set in step (b);
- (d) calculating a difference (Pd) between the current address pointer value (Pnow) and the distance value (Ptemp) calculated in step (c);
- (e) comparing the value (Pd) with a minimum value (Pmin) of the address pointers of the storage medium; and
- (f) determining the value (Pd) as the address pointer value of a location which is searched for if the comparison result of step (e) indicates that

the value ( $P_d$ ) is equal to or greater than the minimum value ( $P_{min}$ ), and otherwise, determining a value, which is obtained by subtracting the minimum value ( $P_{min}$ ) from the value ( $P_d$ ) and adding the subtraction result to the maximum value ( $P_{max}$ ) of address pointers of the storage medium plus 1, as the address pointer value of the location which is searched for.

12. A method for forward searching for a broadcast signal in a method for searching for the broadcast signal using a storage medium of a TV, the method for forward searching comprising the steps of:

- (a) determining whether or not a Direct Move (DM) key is input;
- (b) setting a time point to be searched for if the DM key is input;
- (c) calculating a distance value ( $P_{temp}$ ) from a current address pointer value ( $P_{now}$ ) corresponding to the time set in step (b);
- (d) calculating a sum ( $P_d$ ) of the current address pointer value ( $P_{now}$ ) and the distance value ( $P_{temp}$ ) calculated in step (a);
- (e) comparing the value ( $P_d$ ) with a maximum value ( $P_{max}$ ) of the address pointers of the storage medium; and
- (f) determining the value ( $P_d$ ) as the address pointer value of a location which is searched for if the comparison result of step (e) indicates that the value ( $P_d$ ) is not greater than the maximum value ( $P_{max}$ ), and otherwise, determining a value, which is obtained by subtracting the maximum value

(Pmax) of address pointers of the storage medium plus 1 from the value (Pd), as the address pointer value of the location which is searched for.

13. The method of claim 11, wherein Ptemp in step (c) is  $\frac{(Tset)*Sr}{Id - 1}$ , where Tset denotes an input time point calculated in terms of seconds, Sr denotes a scan rate, and Id denotes an interval between I frames.

14. A processor readable medium for storing a program for performing a method for backward searching for a broadcast signal in a method for searching for the broadcast signal using a storage medium of a TV, the method for backward searching comprising the steps of:

- (a) determining whether or not a Direct Move (DM) key is input;
- (b) setting a time point to be searched for if the DM key is input;
- (c) calculating a distance value (Ptemp) from a current address pointer value (Pnow) corresponding to the time set in step (b);
- (d) calculating a difference (Pd) between the current address pointer value (Pnow) and the distance value (Ptemp) calculated in step (c);
- (e) comparing the value (Pd) with a minimum value (Pmin) of the address pointers of the storage medium; and
- (f) determining the value (Pd) as the address pointer value of a location which is searched for if the comparison result of step (e) indicates that

the value ( $P_d$ ) is equal to or greater than the minimum value ( $P_{min}$ ), and otherwise, determining a value, which is obtained by subtracting the minimum value ( $P_{min}$ ) from the value ( $P_d$ ) and adding the subtraction result to the maximum value ( $P_{max}$ ) of address pointers of the storage medium plus 1, as the address pointer value of the location which is searched for.

15. A processor readable medium for storing a program for performing a method for forward searching for a broadcast signal in a method for searching for the broadcast signal using a storage medium of a TV, the method for forward searching comprising the steps of:

- (a) determining whether or not a Direct Move (DM) key is input;
- (b) setting a time point to be searched for if the DM key is input;
- (c) calculating a distance value ( $P_{temp}$ ) from a current address pointer value ( $P_{now}$ ) corresponding to the time set in step (b);
- (d) calculating a sum ( $P_d$ ) of the current address pointer value ( $P_{now}$ ) and the distance value ( $P_{temp}$ ) calculated in step (a);
- (e) comparing the value ( $P_d$ ) with a maximum value ( $P_{max}$ ) of the address pointers of the storage medium; and
- (f) determining the value ( $P_d$ ) as the address pointer value of a location which is searched for if the comparison result of step (e) indicates that the value ( $P_d$ ) is not greater than the maximum value ( $P_{max}$ ), and otherwise,

determining a value, which is obtained by subtracting the maximum value (Pmax) of address pointers of the storage medium plus 1 from the value (Pd), as the address pointer value of the location which is searched for.